CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2010-0110

WASTE DISCHARGE REQUIREMENTS
FOR
ORANGE AVENUE DISPOSAL, INC.
FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
ORANGE AVENUE LANDFILL
FRESNO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. Orange Avenue Disposal, Inc. (hereafter Discharger), a California corporation, owns and maintains a municipal solid waste landfill south of North Avenue, on the east side of Orange Avenue, within the City of Fresno, in NE1/4, SW1/4, Section 26, T14S, R20E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.

2. The 40-acre waste management facility (facility) contains one existing unlined waste management unit (Unit) covering approximately 30 acres, as shown in Attachment B, which is incorporated herein and made part of this Order. The facility is comprised of Assessor's Parcel Number (APN) 330-220-04.

3. On 27 October 2000, the Central Valley Water Board adopted Order No. 5-00-234 which classified the Unit as a Class III landfill as defined in Title 27, California Code of Regulations, Section 20005 et seq. (hereafter Title 27).

4. Waste discharge ceased on 26 June 2007.

5. This Order revises the existing Waste Discharge Requirements to provide for the construction of a final cover, post-closure maintenance of the facility, and completion of an evaluation monitoring program and corrective action for groundwater degradation.

SITE DESCRIPTION

6. The measured hydraulic conductivity of the native soils underlying the Unit ranges between 1.0×10^{-2} and 2.5×10^{-6} centimeter per second (cm/sec).

7. A Class III landfill must be designed to withstand the Maximum Probable Earthquake (MPE). The MPE is calculated using historic seismic activity within 100 kilometers of

the Unit. The closest fault that has exhibited historic activity is an unnamed fault near Coalinga, approximately 80 kilometers southwest of the facility. An earthquake occurred on this fault in 1983 with a magnitude of 6.5 on the Richter scale. Other faults in the general vicinity of the Unit that have had recent seismic activity may also influence the character of the MPW for the Unit. The MPE for the Unit yields a peak horizontal ground acceleration of 0.08g.

8. Land within 1,000 feet to the north, west, and south of the facility is used for irrigated agriculture. Land use within 1,000 feet to the east is industrial.

9. The facility receives an average of 10.9 inches of precipitation per year as measured at the Fresno WSO AP Weather Station (No. 043257). The mean pan evaporation is 66 inches per year as measured at the Parlier station.

10. The 100-year, 24-hour precipitation event is estimated to be 2.86 inches, as calculated by a Pearson type III distribution.

11. The facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060048 0035 D.

12. There are approximately 40 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the site. No surface springs or other sources of groundwater supply have been observed.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

13. The Discharger disposed of nonhazardous solid wastes as defined in Section 20164 of Title 27. Nonhazardous solid waste includes municipal solid wastes, as referred to in Title 40 Code of Federal Regulations, Part 258.2.

14. The site characteristics where the Unit is located (see Finding No. 6) do not meet the siting criteria for a new Class III landfill contained in Section 20260(a) and (b)(1) of Title 27. As such, the site is not suitable for operating new Units or lateral expansions of existing Units for the discharge and containment of the wastes described in Finding No. 13, without the construction of additional waste containment features in accordance with Section 20260(b)(2) of Title 27 and State Water Resources Control Board Resolution No. 93-62.

SURFACE AND GROUNDWATER CONDITIONS

15. The *Water Quality Control Plan for the Tulare Lake Basin,* Second Edition, revised January 2004 (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

16. Surface drainage is normally to the southwest toward the Fresno Slough. However, runoff in areas surrounding the landfill is collected in a nearby stormwater retention basin maintained by the Fresno Metropolitan Flood Control District, in the Fresno Hydrologic Area (551.30) of the San Joaquin Hydrologic Basin.

17. The landfill is on the floor of the southern San Joaquin Valley. The designated beneficial uses of Valley Floor Waters, as specified in the Basin Plan, are agricultural supply; industrial service and process supply; water contact and non-contact water recreation; warm freshwater and wildlife habitat; preservation of rare, threatened, and endangered species; and groundwater recharge.

18. The first encountered groundwater is about 70 to 75 feet below the native ground surface. Groundwater elevations range from 210 feet mean sea level (MSL) to 215 feet MSL. The groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as 12 feet.

19. Monitoring data indicate background groundwater quality has an electrical conductivity (EC) ranging between 890 and 1,160 micromhos per centimeter, with total dissolved solids (TDS) ranging between 560 and 780 milligram per liter.

20. The direction of groundwater flow is toward the northwest. The direction of groundwater flow varies seasonally and periodically flows toward the west-northwest. The average groundwater gradient is approximately 0.003 feet per foot. The average groundwater velocity is approximately 100 feet per year.

21. The facility is in the Kings Basin Hydrologic Unit, Detailed Analysis Unit (DAU) 233. The designated beneficial uses of the groundwater, as specified in the Basin Plan for DAU 233, are domestic and municipal supply; agricultural supply; industrial service and process supply; and water contact and non-contact water recreation.

GROUNDWATER AND UNSATURATED ZONE MONITORING

22. The groundwater detection monitoring system, initiated in August 1989, consists of two upgradient groundwater monitoring wells (MW-4, MW-7) and five downgradient monitoring wells (MW-1, MW-2, MW-3, MW-5, MW-6) along or near the point of compliance.

23. The Discharger's detection monitoring program for groundwater at this Unit satisfies the requirements contained in Title 27.

24. The Discharger installed a series of gas monitoring probes for perimeter monitoring of the waste management unit. These monitoring devices are suitable for early detection of a landfill release of volatile organic compounds migrating through the vadose zone in a vapor phase.

25. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since VOCs are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.

26. The existing Water Quality Protection Standards (WQPS) report dated February 1995 is outdated and needs to be revised to reflect recent monitoring data, updated concentration limits, and additional monitoring points. (see Detection Monitoring Specification E.4)

27. Title 27 Sections 20415(e)(8) and (9) provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with Title 27 Section 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

28. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27 Section 20080(a)(1). Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.

29. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.

30. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

GROUNDWATER DEGRADATION

31. Analyses of groundwater samples collected from on-site monitoring wells indicate that waste constituents from the landfill have degraded groundwater. Samples from on-site monitoring wells have detected waste constituent concentrations in excess of applicable water quality objectives, in this case primary and/or secondary maximum contaminant levels (MCLs) for drinking water. Non-naturally occurring volatile organic compounds (VOCs) were first detected in 1986. Analyses of groundwater from monitoring wells resumed in May 1990 on a periodic basis and VOCs have been repeatedly detected since then. The historic maximum concentrations detected in monitoring wells are listed in Table 1, in units of micrograms per liter (µg/L).

TABLE 1: MAXIMUM CONCENTRATION OF VOCs DETECTED IN GROUNDWATER MONITORING WELLS

Constituent	Well No.	Maximum Level Detected (µg/L)	MCL (µg/L)
Benzene	MW-3	9.3	1.0
Carbon tetrachloride	MW-6	27.0	0.5
1,1-Dichloroethane	MW-3	37.0	5.0
1,2-Dichloroethane	MW-3	1.2	0.5
1,1-Dichloroethylene	MW-5	8.1	5.0
Dichloromethane	MW-5	49.0	5.0
Tetrachloroethylene	MW-5	11.0	5.0
Trichloroethylene	MW-5	10.0	5.0
Vinyl chloride	MW-2	3.8	0.5

32. Other non-naturally occurring waste constituents detected more than once at concentrations below applicable water quality objectives include: Carbon tetrachloride; chlorobenzene; chloroethane; chloroform; chloromethane; 1,4-dichlorobenzene; cis-1,2-dichloroethene; 1,1-dichloroethane; 1,2-dichloroethylene; 1,2-dichloropropane; 1,4-dichlorobenzene; dichlorodifluoromethane; diethyl either; ethylbenzene; methylene chloride; toluene; 1,1,1-trichlorethane; tetrachloroethene; trichlorothene; trichlorofluoromethane; and xylenes.

33. Naturally occurring waste constituents of concern have been consistently detected in the groundwater at concentrations above background that are statistically significant and indicate a release when using a non-parametric Analysis of Variance (ANOVA) statistical method. Evaluations indicate higher measurements of EC, Sulfate, and TDS in downgradient wells when compared to background concentrations from upgradient wells.

34. Cleanup and Abatement Order No. 95-709 (CAO) was issued on 20 September 1995 by the Executive Officer. The CAO requires the Discharger to implement an evaluation monitoring program (EMP) in accordance with specified tasks. The EMP was to be implemented in three phases to allow information gathered in a previous phase to be utilized in the design of the subsequent phase(s). Phase I consisted of shallow aquifer well point groundwater sampling and was completed in 1996. Phase II would employ deep exploratory drilling and groundwater sampling, and Phase III would include groundwater monitoring well installation and sampling. The CAO did not contain due dates for completion and submission of the reports.

35. The first phase of a landfill gas mitigation system was installed at the landfill in 1997. Operation of the system was anticipated to reduce the levels of VOCs observed in groundwater beneath the Unit, providing a means of groundwater remediation in addition to natural degradation.

36. The overall effectiveness of the gas mitigation system on the groundwater degradation plume is currently under consideration. Per California Department of Resources, Recycling, and Recovery and the Fresno County, Department of Community Health, Environmental Health Division (local enforcement agency), a monitoring plan for an expanded landfill gas collection system was approved. It included the installation of four additional landfill gas compliance wells (GW-8 through GW-11). The system was placed in operation on 25 March 2010 and has been continuously running to date. Results from weekly sampling events indicate that all but one landfill gas monitoring well (GW-8D) exhibited methane concentrations below the 5 percent by volume regulatory threshold in April 2010. As of 3 May 2010, all landfill gas monitoring wells had methane concentrations below 5 percent, therefore the monitoring frequency has been reduced to quarterly in accordance with Title 27.

37. Staff's review of the most recent EMP work plan, dated 10 August 2009, for Phases 2 and 3 found the work plan adequate to delineate the lateral and vertical extent of landfill derived waste constituent degradation of groundwater. A time schedule for completion of the evaluation monitoring program and submission of the engineering feasibility study proposed by the Discharger is incorporated into this Order.

38. The Work Plan proposed the installation of seven continuous multi-channel tubing (CMT) monitoring wells. Proposed locations include one well upgradient on Orange Avenue landfill property, three on-site wells along the northern, northwestern, and western property boundaries, and three off-site wells downgradient to the northwest. The upgradient and three on-site CMT monitoring wells will serve two purposes. The first is to further characterize the lateral and vertical extent of inorganic waste constituent groundwater degradation, and the second is to replace selected existing monitoring wells that have either gone dry or may become dry in the near future due to observed declining groundwater levels in the area. A Phase 3 report will be prepared upon completion of the field investigations and laboratory testing

program to meet the requirements of Task 3 of the CAO. The report will include a summary of work performed, an evaluation of the data, and conclusions regarding the nature and extent of the release of waste constituents.

FINAL COVER CONSTRUCTION AND ENGINEERED ALTERNATIVE

39. The current interim cover on the landfill consists of a minimum of one foot of soil on top of the refuse. The current cover does not meet the final cover requirements of Title 27.

40. Closure and post-closure maintenance requirements for landfills are contained in Section 21090 of Title 27. The prescriptive standard for the final cover is contained in Section 21090(a) of Title 27.

41. Section 20080(b) of Title 27 allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Sections 20080(c)(1) or (2) of Title 27, the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Section 20080(b) of Title 27, or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative cover system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2) of Title 27.

42. Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

43. The Discharger submitted a design plan for the proposed closure of the Unit in a Final Closure Plan dated November 2009. The Final Closure and Post-Closure Maintenance Plans were determined to be adequate in a letter from Staff on 10 May 2010. The plan proposed the construction of an engineered alternative in lieu of the prescriptive cover design specified in Section 21090(a) of Title 27. The proposed engineered alternative is an evapotranspirative design consisting of a vegetated soil layer.

44. The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design. The Discharger

has demonstrated that the proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords at least equivalent protection against water quality impairment.

45. The performance of an evapotranspirative cover design can be adequately predicted by using a computer model that utilizes the Richard's Equation and laboratory-derived parameters from samples of soil that will be used in the construction of the cover.

46. An evapotranspirative final cover constructed according to a design derived in the above manner can be monitored to observe its actual performance. Adjustments can be made to the vegetation or thickness of the soil layer if a trend of under-performance is observed as part of the post-closure maintenance of the cover.

47. The Discharger proposed an evapotranspirative cover design that was derived using the computer model WinUNSAT-H (a Windows version of the computer program UNSAT-H). The proposed design utilizes a five-foot thick soil layer placed above the existing one foot of interim cover for a total cover of six-feet.

48. Section 21090(a)(4)(A) of Title 27 requires that a periodic leak search, including a method for identifying and repairing breaches in the low-hydraulic conductivity layer, be a component of the cover maintenance plan.

49. A common way to conduct a leak search on a cover utilizes a low-hydraulic conductivity layer as part of its design to monitor the surface of the cover for landfill gas emissions.

50. In an evapotranspirative cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the base of the cover.

51. Landfill gas emissions do not definitively indicate a leak in an evapotranspirative cover. A leak in this kind of cover will be detected by using a device that directly measures moisture flux through the cover, such as a pan lysimeter. This Order requires the Discharger to construct a pan lysimeter(s) beneath the final cover.

52. The Discharger must submit the final construction and design plans for the final cover, and the Construction Quality Assurance Plan prior to construction of the final cover. Construction will not proceed until all applicable construction quality assurance plans have been approved by the Executive Officer.

CEQA AND OTHER CONSIDERATIONS

53. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public

Resource Code Section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, Section 15301.

54. This order implements:

    a. *The Water Quality Control Plan for the Tulare Lake Basin,* Second Edition, revised January 2004;

    b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;

    c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and

    d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993 and revised on 21 July 2005.

55. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports."

56. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2010-0110" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

57. This order requires full containment of wastes and does not permit degradation of surface water or groundwater. Further antidegradation analysis is therefore not needed. The discharge is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16.

PROCEDURAL REQUIREMENTS

58. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and

has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

59. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

60. Any person affected by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.waterboards.ca.gov/laws_regulations/index.shtml and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 5-00-234 is rescinded, and that Orange Avenue Disposal, Inc., its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of any additional waste at this facility is prohibited.

B. FACILITY SPECIFICATIONS

1. The Discharger shall immediately notify the Central Valley Water Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or precipitation and drainage control structures.

2. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control and construction.

3. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

4. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, degradation, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

5. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

6. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site, until closure of the landfill is complete and approved.

C. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval at least **120 days prior to** construction, design plans and specifications for a final cover system that includes a Construction Quality Assurance Plan meeting the requirements of Section 20324 of Title 27.

2. **By 31 December 2011**, the final cover system shall be constructed with an engineered alternative design known as an evapotranspirative or monolithic design. The cover shall consist of a vegetated soil layer placed over the existing interim cover soil. The soil layer shall be placed in such a manner that vegetative growth is assured while structural integrity is maintained.

3. One or more pan lysimeters shall be constructed on the upper deck of the Unit beneath the vegetated soil layer to monitor the effectiveness of the final cover in accordance with a plan approved by Central Valley Water Board staff.

4. The Discharger may propose changes to the final cover system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed final cover system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board.

5. Construction shall proceed only after all applicable construction quality assurance plans have been approved by the Executive Officer.

6. **By 31 March 2012**, following the completion of construction of the final cover system, the final documentation required in Section 20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a California registered civil engineer or certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the standards and performance goals of Title 27.

7. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance (CQA) monitoring and testing during the construction of the cover system. The CQA program shall be supervised by a California registered civil engineer or certified engineering geologist who shall be designated the CQA officer.

D. EVALUATION MONITORING SPECIFICATIONS

1. **By 30 June 2011**, the Discharger shall complete an Evaluation Monitoring Program to the satisfaction of the Executive Officer and that meets the provisions of Section 20425(b) of Title 27, and a report shall be submitted that describes all actions and monitoring taken to complete the Evaluation Monitoring Program.

2. At a minimum, the following documentation is needed to complete the Evaluation Monitoring Program:

   a. An analysis of all the information gathered to determine the lateral and vertical extent of each waste constituent released from the Unit. This assessment shall include a determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release.

   b. An assessment of the lateral and vertical extent for each waste constituent in groundwater shall be determined when the constituent no longer meets the trigger criteria for detection in accordance with the detection monitoring program contained in Monitoring and Reporting Program No. R5-2010-0110. For a non-naturally occurring waste constituent, the extent will be determined when groundwater sample analyses do not detect any non-naturally occurring waste constituents at or above the practical quantitation limit (PQL), or no more than one non-naturally occurring waste constituent is detected at or above the method detection limit (MDL) and below the PQL. For naturally occurring waste constituents, or waste constituents that have a statistically derived water quality protection standard, the extent will be determined when groundwater sample analyses do not detect a released constituent at a "measurably significant" concentration as defined by the most current water quality protection standard.

   c. A table listing the constituents of concern that includes the concentration limit for metals and general water quality parameters based on a statistical evaluation of the background concentrations of these parameters.

   d. A description of how the determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release was accomplished.

3. **By 30 September 2011,** the Discharger shall submit, pursuant to Title 27 Section 20425(c), a report containing a final engineering feasibility study for corrective action pursuant to Section 20420(k) of Title 27. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.

E. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall comply with Monitoring and Reporting Program No. R5-2010-0110, which is incorporated into and made part of this Order. Groundwater monitoring shall include corrective action monitoring.

2. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices. At the beginning of each sampling period, in accordance with Section B. Reporting of Monitoring and Reporting Program No. R5-2010-0110, a schedule shall be submitted listing anticipated sampling dates for that reporting period.

3. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and the unsaturated zone in accordance with Monitoring and Reporting Program No. R5-2010-0110, which is incorporated into and made part of this Order.

4. The Discharger shall comply with the Water Quality Protection Standard (as defined in Section 20390 of Title 27), which is specified in Monitoring and Reporting Program No. R5-2010-0110 and the Standard Provisions and Reporting Requirements, dated April 2000. **By 31 December 2010**, the Discharger shall submit an updated Water Quality Protection Standard that meets the requirements of Section 20390 of Title 27.

5. The Water Quality Protection Standard for compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (i.e., USEPA methods 8260 and 8270). The presence of non-naturally occurring compounds in samples from detection monitoring wells is evidence of a release from the Unit unless the Discharger can demonstrate that the Unit is not the cause pursuant to Section 20420(k)(7) of Title 27.

6. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2010-0110.

7. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. R5-2010-0110 and Section 20415(e) of Title 27.

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

9. **By 31 December 2010**, the Discharger shall submit an updated Sample Collection and Analysis Plan. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.

10. If methods other than USEPA-approved methods or Standard Methods are used, a detailed description of the methodology shall be submitted for review and approval by the Executive Officer prior to use.

11. The **methods of analysis and the detection limits** used shall be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical method having the MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.

13. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

14. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

15. The Quality Assurance/Quality Control **(QA/QC) data** shall be reported, along with the sample results to which they apply, including the method, equipment, and analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

16. **Unknown chromatographic peaks** shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

17. The statistical method shall account for data below the PQL with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Section 20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in this Order for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Section 20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's

concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties."

18. The Discharger may propose an alternate statistical method [to the methods listed under Section 20415(e)(8)(A-D) of Title 27] in accordance with Section 20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). The analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.

19. The Discharger shall use the following nonstatistical method specified in Detection Monitoring Specification E.20 for all constituents which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). This includes all constituents in the Monitoring Parameters and for all Constituents of Concern (COC) found in groundwater and unsaturated zone (in soil-pore liquid or gas). Each constituent at a monitoring point shall be determined to meet this criterion based on either:

    a. The results from a single sample for that constituent, taken during that reporting period from that monitoring point; or

    b. If more than one sample has been taken during a reporting period from a monitoring point, the results from the sample which contains the largest number of qualifying constituents shall be used.

       Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 Section 20415(e)(8)(A-D)] in accordance with Section 20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

20. The nonstatistical method shall be implemented as follows:

    a. For every compliance well, regardless of the monitoring program, the Discharger shall use this data analysis method, jointly, for all monitoring parameters and COCs that are detected in less than 10% of background samples. Any COC that triggers a discrete retest per this method shall be added to the monitoring parameter list.

Triggers — From the monitoring parameters and COC list identify each constituent in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provide a measurably significant indication] of a change in the nature or extent of the release, at that well, if either:

1) The data contains two or more qualifying monitoring parameters and/or COCs that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or

2) The data contains one qualifying monitoring parameter and/or COC that equals or exceeds its PQL.

b. Discrete Retest [Title 27, Section 20415(e)(8)(E)]:

1) In the event that the Discharger concludes (pursuant to paragraph 20.a., above) that there is a preliminary indication, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the indicating compliance well.

2) For any given compliance well retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test. As soon as the retest data are available, the Discharger shall apply the same test [under 20.a.], to separately analyze each of the two suites of retest data at that compliance well.

3) If either (or both) of the retest samples meets either (or both) of the triggers under 20.a., then the Discharger shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s).

21. If the Executive Officer determines, after reviewing the submitted report, that the detected constituent(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of Section XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

F. FINAL COVER MAINTENANCE AND MONITORING

1. The Discharger shall monitor the final cover in accordance with the Post-Closure Maintenance Plan and the Monitoring and Reporting Program No.R5-2010-0110.

2. Monitoring of the final cover shall include inspecting and recording the volume of moisture collected by the pan lysimeter(s) (see Construction Specification C.3.)

3. The Discharger shall submit a report for Executive Officer review and approval **within 90 days** following the completion of cover construction proposing the amount of moisture that would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) with supporting documentation

4. In the event the pan lysimeter(s) detects significant moisture infiltration, then, **within 120 days**, the Discharger shall submit a plan and time schedule, for Executive Officer review and approval, to evaluate the problem, and recommend and implement corrective measures.

G. PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

2. The Discharger shall maintain a copy of this Order at the facility until completion of closure and make it available at all times to facility maintenance personnel, who shall be familiar with its contents, and to regulatory agency personnel.

3. The Discharger shall comply with all applicable provisions of Title 27 and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2010-0110, which is incorporated into and made part of this Order.

5. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 Section 20005 et seq. and 40 CFR 258 et seq.)*, dated April 2000, which is hereby incorporated into this Order.

6. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

b. For a partnership or sole proprietorship: by a general partner or the proprietor.

c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

d. A duly authorized representative of a person designated in a, b or c above if;

1) The authorization is made in writing by a person described in a, b, or c of this provision;

2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

3) The written authorization is submitted to the Central Valley Water Board.

e. Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

8. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the closure and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.

9. If the Discharger or the Central Valley Water Board determines that the corrective action program is not adequate (i.e. does not satisfy the provisions of Section 20430 of Title 27), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Central Valley Water Board of such determination, submit an amended report of waste discharge

(RWD) to make appropriate changes to the program. The amended RWD shall include the following:

a. A discussion as to why existing corrective action measures have been ineffective or insufficient.

b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release.

c. A discussion of corrective action needs and options.

d. Proposed additional corrective action measures, as necessary, for:

   1) Source control,

   2) Groundwater cleanup, and/or

   3) Landfill gas control

e. A plan to monitor the progress of corrective action measures consistent with Monitoring and Reporting Program No. R5-2010-0110.

f. Cost estimates for implementing additional corrective action, including monitoring.

g. An implementation schedule.

10. The fact that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violation of the Order.

11. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order **within 14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in Provision G.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

12. The Discharger shall establish and maintain an approved cost estimate for initiating and completing corrective action for all known or foreseeable releases from the landfill.

13. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval by **30 June of each year**. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

14. The Discharger shall conduct an annual review of the financial assurance for closure and post-closure maintenance, and submit a report for Executive Officer review and approval by **30 June of each year**. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

15. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule.

Task	Compliance Date
A. Cover Design Plan	
Submit a plan for determining the design of the Final cover for Executive Officer review and approval.	**At Least 120 Days Prior to Construction**
B. Construction Plans	
Submit construction and design plans for Executive Officer review and approval. (see Construction Specification C.1)	**At Least 90 Days Prior to Construction**
C. Final Cover Construction	
Complete final cover construction in accordance with approved construction plans. (see Construction Specification C.2)	**31 December 2011**

D. Construction Report

Submit a construction report upon completion demonstrating construction was in accordance with approved construction plans for Executive Officer review and approval. (see Construction Specification C.6)	**31 March 2012**

E. Infiltration Report

Submit a report proposing what amount of moisture would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) for Executive Officer review and approval. (See Monitoring Specification F.3)	**31 March 2012**

F. Evaluation Monitoring Specifications

1.	Submit a report describing completion of the Evaluation Monitoring Program (see Evaluation Monitoring Specification No. D.1)	**30 June 2011**
2.	Submit a final engineering feasibility study for a corrective action program. (see Evaluation Monitoring Specification No. D.3)	**30 September 2011**

G. Financial Assurance Review

1.	Annual Review of Financial Assurance for initiating and completing corrective action (see Provision G.13.)	**30 June each year**
2.	Annual Review of Financial Assurance for closure and post-closure maintenance (see Provision G.14.)	**30 June each year**

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provision of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability.

I, PAMELA CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 23 September 2010.

for PAMELA CREEDON, Executive Officer

EAM:7/21/10

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-0110
FOR
ORANGE AVENUE DISPOSAL, INC.
FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
ORANGE AVENUE LANDFILL
FRESNO COUNTY

The Discharger shall comply with this Monitoring and Reporting Program, with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), and with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258)*, dated April 2000, as ordered by Waste Discharge Requirements Order No. R5-2010-0110.

A. REQUIRED MONITORING REPORTS

1. Groundwater Monitoring (Section D.1)
2. Corrective Action Monitoring (Section D.2)
3. Annual Monitoring Summary Report (Section E.5.)
4. Unsaturated Zone Monitoring (Section D.3)
5. Facility Monitoring (Section D.4)
6. Response to a Release (Standard Provisions and Reporting Requirements)

B. REPORTING

Orange Avenue Disposal, Inc. (hereafter Discharger), shall submit ***semiannual*** monitoring reports with the data and information required in this Monitoring and Reporting Program and as required in Order No. R5-2010-0110 and the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Each monitoring report shall include a compliance evaluation summary as specified in E. Reporting Requirements, below.

Report Due Dates

Field and laboratory tests shall be reported in each monitoring report. Monthly, quarterly, semiannual, and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

Sampling Frequency	Reporting Frequency	Reporting Periods End	Report Date Due
Monthly	Semiannual	Last Day of Month	**by Semiannual Schedule**
Quarterly	Quarterly	31 March	**31 July**
		30 June	**31 July**
		30 September	**31 January**
		31 December	**31 January**
Semiannually	Semiannually	30 June	**31 July**
		31 December	**31 January**
Annually	Annually	31 December	**31 January**
5-Year	Every 5 years	31 December	**31 January**

The Discharger shall submit an **Annual Monitoring Summary Report** covering the previous monitoring year. The annual report shall contain the information specified in E. Reporting Requirements, below, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard.

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all

Units at the facility are those listed in Tables I through IV for the specified monitored medium. The Discharger shall monitor all constituents of concern every five years, or more frequently as required in accordance with a Corrective Action Program.

a. **Monitoring Parameters**

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables I through III for the specified monitored medium.

2. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27(e)(8); or

b. By an alternate statistical method meeting the requirements of §20415(e)(8)(E) of Title 27.

3. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

4. Compliance Period

The compliance period for each Unit shall be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program.

D. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, and the unsaturated zone, in accordance with Detection

Monitoring Specification E.1 and E.5 of Waste Discharge Requirements, Order No. R5-2010-0110. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the Executive Officer.

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, and unsaturated zone monitoring devices, shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables I through IV.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table IV.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

1. Groundwater

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of §20415 and §20420 of Title 27 in accordance with a Detection Monitoring Program approved by the Executive Officer. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting

Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.

Groundwater samples shall be collected from the point-of-compliance wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table I.

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schoeller plot. Samples for the constituents of concern specified in Table I shall be collected and analyzed in accordance with the methods listed in Table IV every five years.

2. Corrective Action

The Discharger shall operate and maintain a groundwater corrective action monitoring system for the purpose of monitoring the nature and extent of the release and the progress of corrective action. Sample collection and analysis shall coincide with Groundwater Detection Monitoring.

Corrective Action monitoring data analysis shall include the following:

a. Nature and Extent
    1) Comparisons with concentration limit to identify any new or previously undetected constituents at a monitoring point.

b. Effectiveness of Corrective Action
    1) Preparation of time series plots for representative constituents.
    2) Trend analysis for each constituent.
    3) The need for additional corrective action measures and/or monitoring wells.

The results of the above analysis, including a narrative discussion, shall be included in each semiannual report and summarized in the Annual Report, as specified under reporting Section B above. The semiannual monitoring reports shall also include a discussion of the progress of corrective action toward returning to compliance with the Water Quality Protection Standard, as specified in Section 20430(h) of Title 27.

3. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provision of Section 20415 and 20420 of Title 27 in accordance with an approved Detection Monitoring Program. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in Table II. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point. Samples for the constituents of concern specified in Table II shall be collected and analyzed in accordance with the methods listed in Table IV every five years.

Unsaturated zone monitoring reports shall be included with the corresponding semiannual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

4. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section E.3.f., below. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events* (i.e., a storm that causes continuous runoff for at least one hour). Necessary

repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste containment facilities and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs. Minor damage and subsequent repairs shall be reported in the next self-monitoring report.

E. REPORTING REQUIREMENTS

1. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the postclosure period.

   Such legible records shall show the following for each sample:

   a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

   b. Date, time, and manner of sampling;

   c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

   d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

   e. Calculation of results; and

   f. Results of analyses, and the MDL and PQL for each analysis.

2. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report.

3. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:

   a. For each monitoring point and background monitoring point addressed by the report, a description of:

      1) The time of water level measurement;

      2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

      3) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all portions of the water that was in the well bore while the sample was being taken;

      4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and

      5) A statement that the sampling procedure was conducted in accordance with the approved Sampling and Analysis Plan approved by the Executive Officer.

   b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

   c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.

   d. Laboratory statements of results of all analyses evaluating compliance with requirements.

   e. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.

   f. A summary and certification of completion of all **Standard Observations** for the Unit, for the perimeter of the Unit. Standard observations for the closed landfill unit shall be conducted **monthly** during the wet season (1 October to 30 April) and **quarterly** during the dry season (1 May to 30 September). The Standard Observations shall include:

1) For the Unit:

   a) Evidence of ponded water at any point on the facility (show affected area on map);

   b) Evidence of erosion and/or of day-lighted refuse.

2) Along the perimeter of the Unit:

   a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

   b) Evidence of erosion and/or of day-lighted refuse.

4. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:

   a. A map showing the location(s) of seepage;

   b. An estimate of the flow rate;

   c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

   d. Verification that samples have been submitted for analyses of the Monitoring Parameters and Constituents of Concern listed in Table III of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and

   e. Corrective measures underway or proposed, and corresponding time schedule.

5. The Discharger shall submit an **Annual Monitoring Summary Report** to the Central Valley Water Board covering the reporting period of the previous monitoring year. This report shall contain:

   a. All monitoring parameters and constituents of concern shall be graphed so as to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or

parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

b. All historical monitoring data, including data for the previous year, shall be submitted in tabular form as well as in a digital file format. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Section 20420(h) of Title 27], in that this facilitates periodic review by the Central Valley Water Board.

c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.

d. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
for PAMELA C. CREEDON, Executive Officer

23 September 2010
(Date)

EAM: 7/21/10

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Quarterly
Temperature	°C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table III)	µg/L	Semiannual
Constituents of Concern (see Table IV)		
Total Organic Carbon	mg/L	Every 5 years
Inorganics (dissolved)	mg/L	Every 5 years
Volatile Organic Compounds (USEPA Method 8260, extended list)	µg/L	Every 5 years
Semi-Volatile Organic Compounds (USEPA Method 8270)	µg/L	Every 5 years
Chlorophenoxy Herbicides (USEPA Method 8151)	µg/L	Every 5 years
Organophosphorus Compounds (USEPA Method 8141)	µg/L	Every 5 years

TABLE II

UNSATURATED ZONE DETECTION MONITORING PROGRAM

SOIL-PORE GAS

Parameter	Units	Frequency
Monitoring Parameters		
Volatile Organic Compounds (USEPA Method TO-14)	$\mu g/cm^3$	Semiannual
Methane	%	Semiannual

TABLE III

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC:

USEPA Method 8260

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- I ,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Hexachlorobutadiene

TABLE III

MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Hexachloroethane
Methyl bromide (Bromomethene)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
4-Methyl-2-pentanone (Methyl isobutylketone)
Naphthalene
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloethane (Methylchloroforrn)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Inorganics (dissolved):	**USEPA Method**
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	6010
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	200.8
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	200.8
Lead	200.8
Mercury	7470
Nickel	6010
Selenium	200.8
Thallium	200.8
Cyanide	E335.4
Sulfide	376.2

Volatile Organic Compounds:

USEPA Method 8260

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, l-Dichloroethene; Vinylidene chloride)
cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- l ,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- l ,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semi-Volatile Organic Compounds:

USEPA Method 8270 - base, neutral, & acid extractables

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Hexachlorocyclopentadiene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol

TABLE IV

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

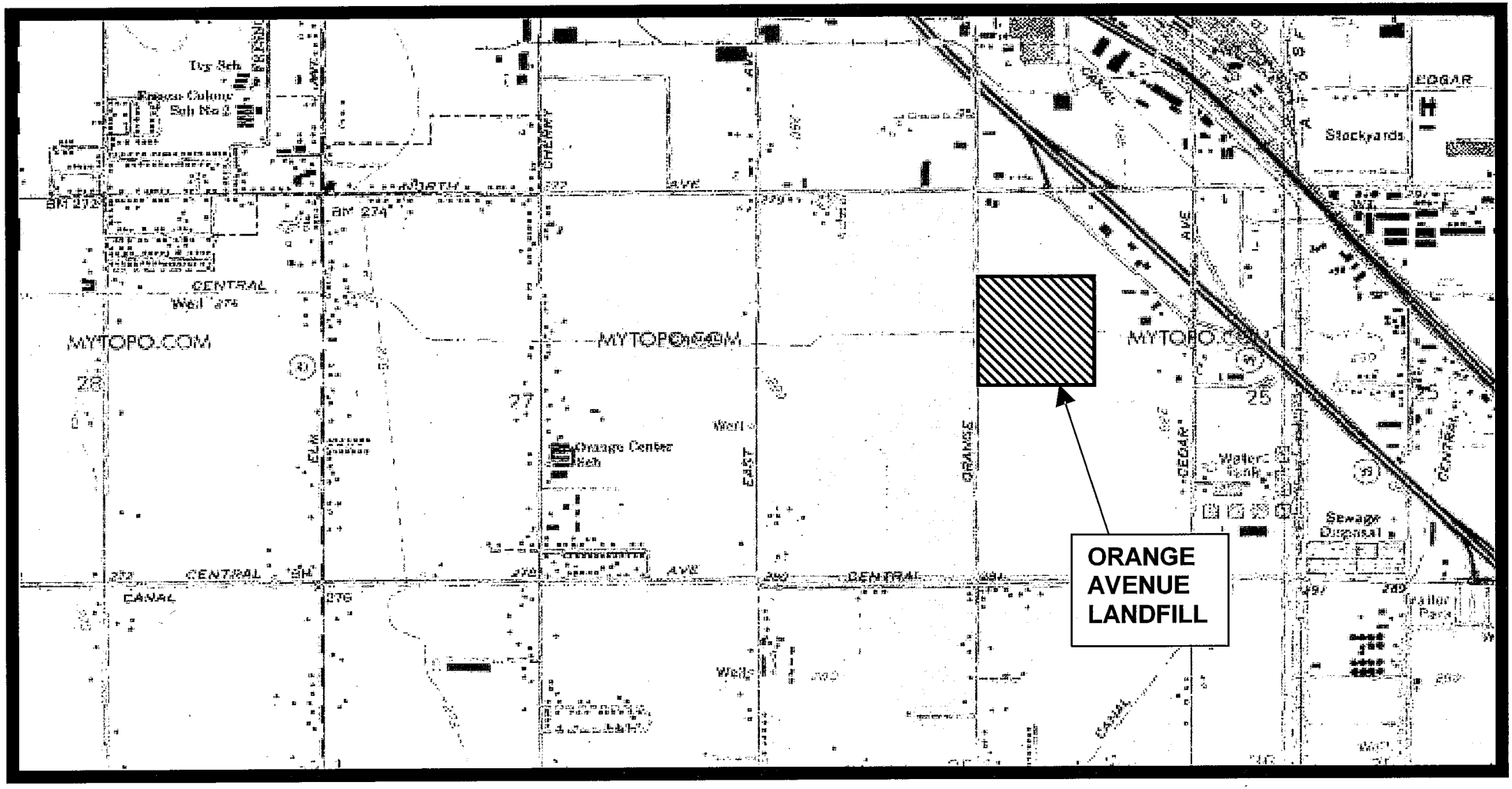
o-Toluidine
Toxaphene
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Chlorophenoxy Herbicides:

USEPA Method 8I51
2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

Organophosphorus Compounds:

USEPA Method 8141
Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Ethion
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine



EXPLANATION

Waste Management Facility

N

0 2000 4000 FEET

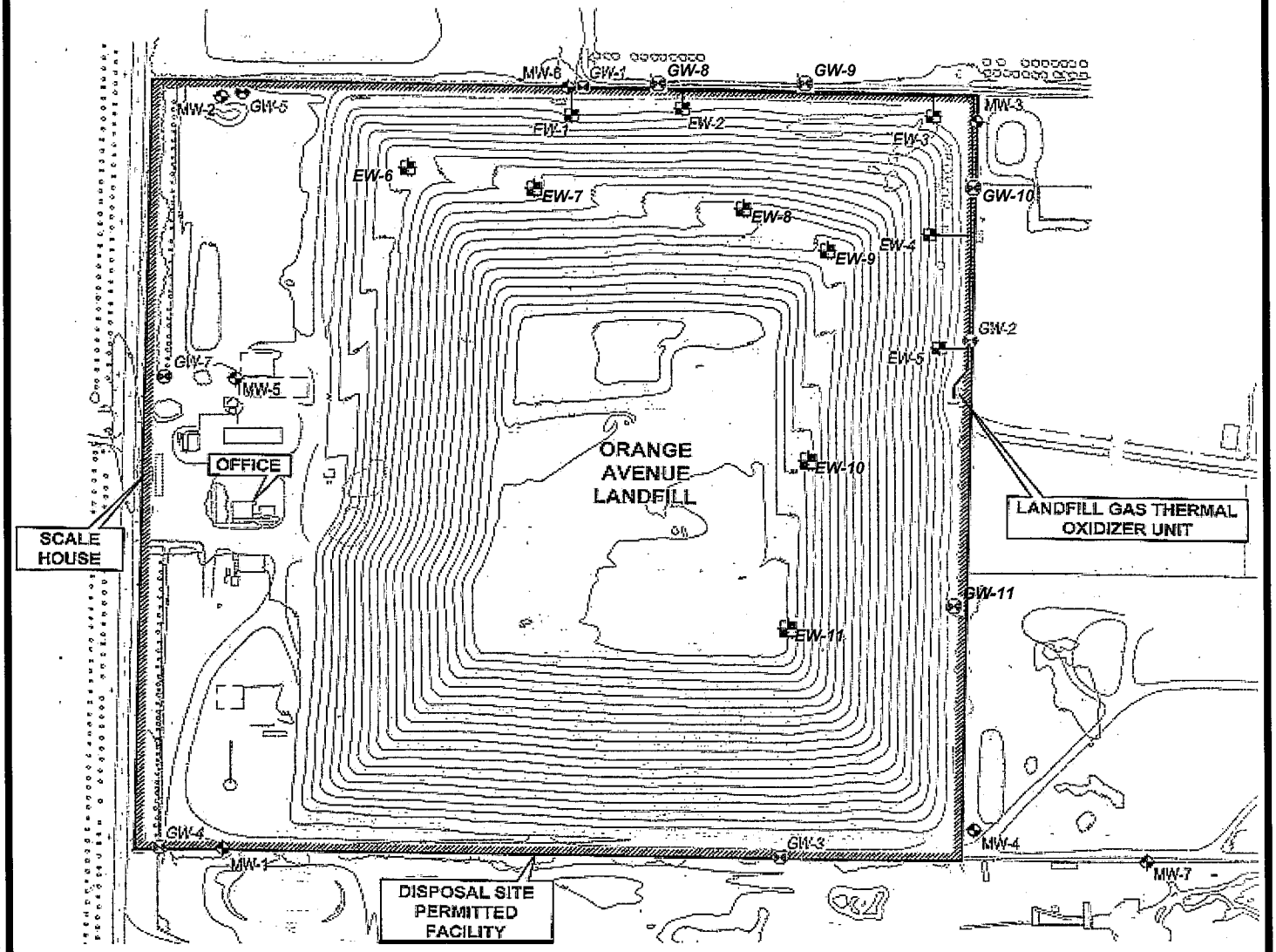
ATTACHMENT A

LOCATION MAP

ORDER NO. R5-2010-0110

ORANGE AVENUE DISPOSAL, INC. FOR
CLOSURE AND POST-CLOSURE MAINTENANCE
ORANGE AVENUE LANDFILL
FRESNO COUNTY

Fresno South 7.5' USGS Quad



EXPLANATION

- Groundwater Monitoring Well
- Landfill Gas Monitoring Well
- Landfill Gas Extraction Well

N

0 300 600 FEET

Map taken from EBA Engineering, Annual 2009 Monitoring Summary Report; Orange Avenue Landfill, Fresno County

ATTACHMENT B
SITE PLAN

ORDER NO. R5-2010-0110

ORANGE AVENUE DISPOSAL, INC.

FOR

CLOSURE AND POST-CLOSURE MAINTENANCE

ORANGE AVENUE LANDFILL

FRESNO COUNTY

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2010-0110
FOR ORANGE AVENUE DISPOSAL, INC.
FOR CLOSURE AND POST-CLOSURE MAINTENANCE
ORANGE AVENUE LANDFILL
FRESNO COUNTY

The Orange Avenue Landfill, owned by Orange Avenue Disposal, Inc. (hereafter Discharger) is just south of North Avenue on the east side of Orange Avenue, within the City of Fresno. Municipal solid wastes were received from the City of Fresno and surrounding areas in south-central Fresno County. Waste discharge ceased on 26 June 2007.

The climate in the southern San Joaquin Valley is semi-arid, with hot, dry summers and cool winters. The average annual precipitation is 10.9 inches with a mean pan evaporation of 66 inches. The site is not within a 100-year floodplain according to FEMA maps.

The 40-acre waste management facility contains one existing unlined waste management unit (Unit) covering approximately 30 acres. The soils immediately underlying the facility were deposited as alluvial fan sediments consisting of unconsolidated interbedded sands, silts, and clays. The site is not within a known fault hazard zone.

The first encountered groundwater is approximately 70 to 75 feet below the native ground surface. The direction of groundwater flow is toward the northwest. The average groundwater gradient is approximately 0.003 feet per foot. Monitoring data indicate that background groundwater quality does not meet the recommended Secondary Maximum Contaminant Level drinking water standards, has a specific electrical conductivity range from 890 to 1160 micromhos per centimeter, and total dissolved solids ranging from 560 to 780 milligram per liter.

The existing groundwater monitoring network consists of two upgradient wells and five downgradient wells along or near the point of compliance. The Discharger installed a series of landfill gas monitoring probes for perimeter monitoring of the waste management unit. These monitoring devices are suitable for early detection of a landfill release of volatile organic compounds migrating through the vadose zone in a vapor phase.

Several volatile organic compounds were first detected in groundwater when the detection monitoring wells were installed in 1986. Analyses of groundwater from monitoring wells resumed in May 1990 on a periodic basis and VOCs have been repeatedly detected since then, often at concentrations above water quality objectives. On 20 September 1995, Cleanup and Abatement Order (CAO) No. 95-709 was adopted by Executive Officer signature, requiring the Discharger to implement an evaluation monitoring program (EMP) in accordance with specific tasks. The EMP was to be implemented in three phases to allow information gathered in a previous phase to be utilized in the design of the subsequent phase(s). Phase 1 was completed in 1996, Phase 2 would employ deep exploratory drilling and groundwater sampling, and Phase 3 would include groundwater monitoring well installation and sampling. The CAO did not contain due dates for completion and submission of the reports.

Staff's review of the most recent EMP work plan, dated 10 August 2009, for Phases 2 and 3 found the work plan adequate to delineate the lateral and vertical extent of landfill derived waste constituent degradation of groundwater. In addition to implementing the EMP, corrective action to remediate groundwater degradation was initiated with the installation of a landfill gas mitigation system in 1997. The mitigation system consists of a series of active vent pipes connected to a thermal oxidizer unit. Operation of the system is anticipated to reduce the levels of VOCs observed in groundwater beneath the landfill, providing a means of groundwater remediation in addition to natural degradation and source control.

The overall effectiveness of the landfill gas mitigation system on the groundwater degradation is currently being evaluated. Results from sampling events indicate that all but one landfill gas monitoring well (GW-8D) exhibited methane concentrations below the 5 percent by volume regulatory threshold in April 2010. As of 3 May 2010, all landfill gas monitoring wells had methane concentrations below 5 percent, therefore the monitoring frequency has been reduced to quarterly in accordance with Title 27.

The proposed final cover is an evapotranspiration cover design (ET), which is an engineered alternative. In an ET cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the base of the cover. The proposed ET cover will utilize a five-foot thick soil layer placed above the existing one foot interim cover for a total cover of six-feet.

Section 20080(b) of Title 27 allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. The proposed engineered alternative cover system needs to be consistent with the performance goal addressed by the particular prescriptive standard, and provide protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2) of Title 27. Provision 15 of this Order requires submittal of final construction and design plans for Executive Officer approval to ensure the ET cover meets the standard for the engineered alternative approved by the Central Valley Water Board.

This Order updates the waste discharge requirements for the facility in conformance with the California Water Code and Title 27, and the revisions and policies adopted thereunder, for the closure and post-closure maintenance and completion of an evaluation monitoring program and corrective action for groundwater degradation of this facility.

The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code Section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR,

Section 15301. This order requires full containment of wastes and does not permit degradation of surface water or groundwater. Further antidegradation analysis is therefore not needed. The discharge is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16.

EAM:7/21/10